LAROQUE BRIDGE
Spanning the New Haven River at Vermont Route 116,
0,25 miles south of the intersection of Vermont
Route 116 and Town Highway 2
Bristol
Addison County
Vermont

HAER No. VT-21

HAER
VT
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philsdelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphis, PA 19106

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HISTORIC AMERICAN ENGINEERING RECORD
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Location: Spanning the New Haven River on Vermont Route 116, 0.25 miles south of the intersection of Vermont Route 116 and Town Highway 2.
Town of Bristol
Addison County
Vermont

USGS South Mountain Quadrangle, Universal Transverse Mercator Coordinates 18.652600.4884220.

Date of Construction: 1925

Engineer: McClintic-Marshall Company/Byron, Forman & Riggs

Present Owner: State of Vermont, Agency of Transportation, Montpelier, VT

Present Use: Vehicular Bridge

Significance: This bridge is typical of the engineering practice of the early 20th Century. By that time, two basic truss designs Warren and Pratt had replaced the variety of types which characterized the 19th Century. Riveted construction was almost universal. In the heaviness of its members and concrete slab floor, the bridge reflects the growing use of automobiles and trucks in the 1920s. This truss is identical to the standard bridges built in the late 1920s except that it uses built-up members instead of rolled I-beams. These members cost more but were lighter than equivalent rolled sections. Like most flood-era bridges, built in late 1920s it has a curved top chord. Though more costly to fabricate, curved chords saved money in heavy-service bridges like this relatively long and wide concrete decked span, since the truss had extra depth only in the middle where it was needed to counter bending forces. McClintic-Marshall Company was a Pennsylvania based fabricator which advertised heavily for New England business in the 1920s. This Company built the Bath bridge in Maine as well as four other Vermont bridges.

Project Information: This documentation was undertaken in January 1991 in accordance with a Memorandum of Agreement signed by the Federal Highway Administration (FHWA), the Vermont State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP). The Memorandum of Agreement has been accepted by the ACHP as a mitigative measure prior to the removal of the bridge.

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1. Site Features and Historical Background

This bridge crosses the New Haven River in the eastern part of the Town of Bristol. The New Haven River flows from northeast to southwest through Bristol and empties into the Otter Creek, which flows northwest into Lake Champlain. Lake Champlain drains north via the St. Lawrence River in Quebec which flows east into the Gulf of St. Lawrence and Atlantic Ocean. (Ref. 1)

The Town of Bristol is located in the northeastern part of Addison County. It is bounded on the north by the Towns of Monkton and Starksboro, on the east by the Towns of Starksboro and Lincoln, on the south by the Town of Middlebury and on the west by the Town of New Haven. A spur of the Green Mountains runs the entire length of the Town of Bristol on the eastern side. (Ref. 2)

Like most Vermont towns, the Town of Bristol was established by a charter containing approximately 23,500 acres granted to a group of speculators in 1762. The Town of Bristol was originally called Pocock after one of the grantees. In 1789, the name of the Town was changed to Bristol by the Legislature. The first settlers came from Connecticut in 1786. The first town meeting was held in 1789. Records shows that Indians inhabited Bristol in the early days before the settlers came there. Now the Town of Bristol has an area of almost 26,900 acres. (Ref. 2, 3, 4)

Farming was the livelihood of the early settlers and played a major economic role in the history of Bristol. The soil was generally productive but varied considerably in composition. The fertile soil in the uplands and intervale of Bristol produced successful crops. Wheat was the staple crop in the early days of Bristol. Records show iron ore was long mined in Bristol. (Ref. 3, 5)

2. Bridge Description

The Laroque Bridge is a single span steel Warren polygonal pony truss with curved top chord.

The 19 foot wide, 103 foot span bridge is composed of six 17'-2" panels. Each panel is composed of a top chord which is a 10" X 18" box girder with latticed underside. The bottom chord of the panel consists of paired T-sections with tie plates at about 5' intervals. The bottom chord in the end panels consists of paired angles instead of paired T-sections. The diagonals are paired angles joined by lattice bars. The verticals are I-section plate girders. All truss connections are riveted. (Ref. 6)

The floor system is composed of I-beam floor beams with 5 I-beam stringers and angle section bottom cross bracings. The bridge floor is a concrete slab with curb. The bridge railings consist of multiple intersection lattice between two angles. The abutments are concrete. The bridge has poor alignment. (Ref. 6, 7)

Since its construction in 1925, the Laroque Bridge has been repaired a few times. In 1989, four new beams were added to the floor system. The

concrete curbs on the bridge are severely spalled exposing reinforcing steel. The bridge railings are bent and severely rusted. The floor beams other than the new ones are severely rusted with section losses. The bridge seat area is in good condition. The backwall and wingwalls are in good condition except for minor scaling. (Ref. 7)

3. Construction

This bridge was constructed in 1925 before the great flood of 1927 which affected the whole State of Vermont. The bridge was fabricated by McClintic-Marshall Company, which was a Pennsylvania- based company. This company advertised heavily for New England business in the 1920s. With its foothold in New England, this Company contributed significantly to the rebuilding in Vermont after the 1927 flood. The Laroque Bridge is one of the bridges fabricated by the McClintic-Marshall Company before the flood. Though the bridge was fabricated by the McClintic-Marshall Company, it was built by the Byron, Forman & Briggs Company. (Ref. 6, B)

4. Design and Technology

This bridge is typical of the engineering practices of the early 20th century. The changes in the bridge fabricating industry in the late 19th century had begun to narrow the variety in types of trusses used before that period. Some notable disasters in the bridge industry had made the companies more conservative in the face of an enraged public. The well-proven patterns like the Pratt, Warren and their variants gained an insurmountable edge. (Ref. 6, 8)

The Laroque Bridge is a Warren polygonal pony truss. Its riveted construction was almost universal at that time. The heaviness of the bridge members and the concrete slab floor reflect the growing use of automobiles and trucks at that time. This bridge is identical to the standard bridges built in the late 1920s except for its use of built-up members instead of rolled I-beams which were less expensive and heavier. Like the late 1920s bridges, the Laroque Bridge has a curved top chord. The curbed top chords were more expensive to fabricate but they saved money in heavy-service bridges like this relatively long and wide concrete decked span where the trusses need extra depth only in the middle to counter bending forces. (Ref. 6)

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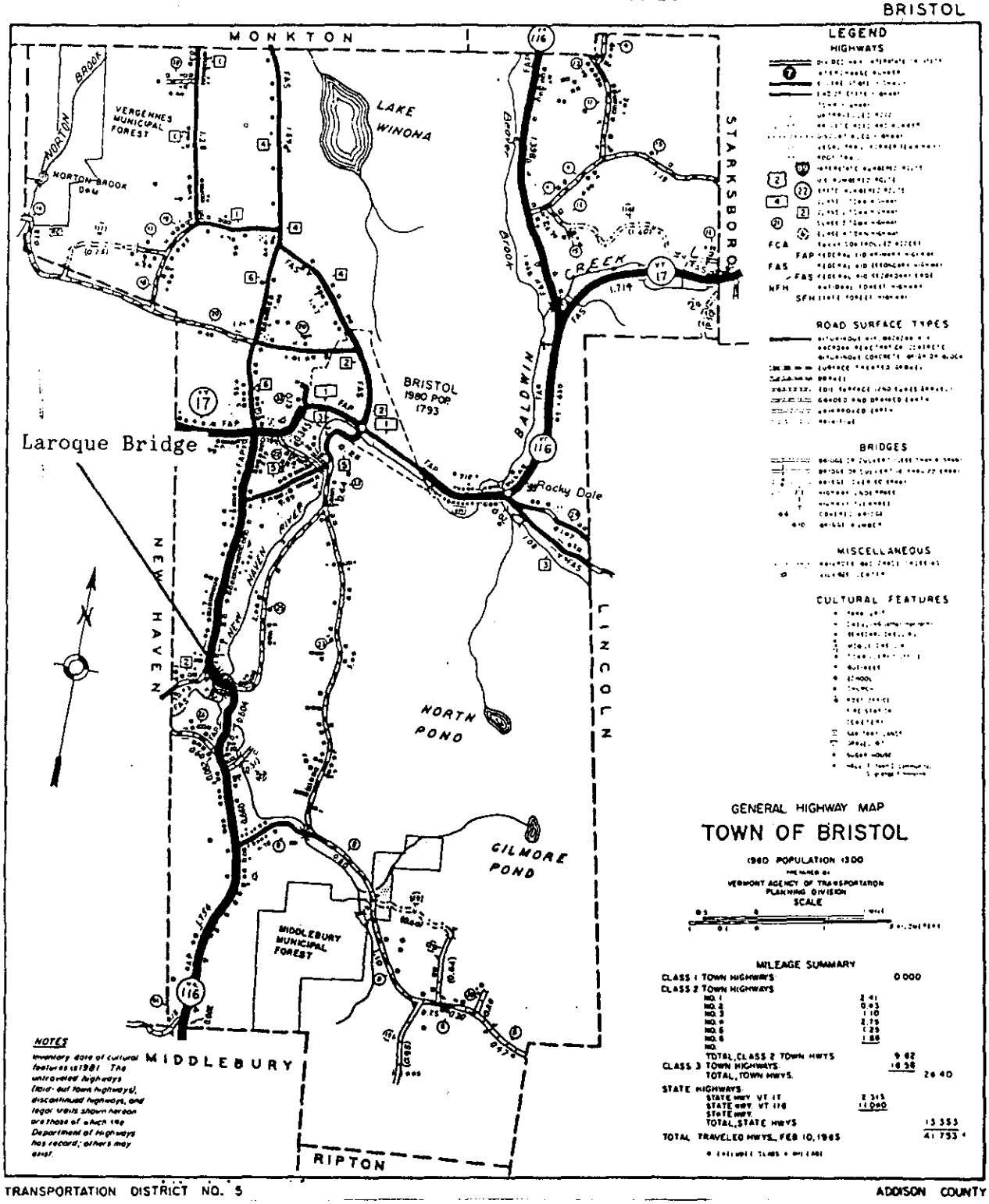

Source: General Highway Map prepared by Vermont Agency of Transportation Planning Division.